

Claims:

1. A method for bleaching (3) mechanically (2) defibered pulp (14) with peroxide (29) in alkaline conditions and for washing (4) the bleached pulp (15) and recovering chemicals from the spent liquor (16) of the bleaching step by concentrating (5, 8) and combusting (6) the spent liquor and dissolving (7) the ash (31) thus formed into water (13), **characterized** in that the alkaline conditions in the bleaching step (3) are obtained by adding alkali metal aluminate (12) to the pulp (14) to be bleached, which alkali metal aluminate at least to a part is said ash (28) dissolved in water.
2. The method of claim 1, **characterized** in that said alkali metal aluminate is sodium aluminate.
3. The method of claim 2, **characterized** in that said alkaline conditions in the bleaching step (3) are partially obtained by impregnating (1) said wood chips (11) to be mechanically defibered with an aqueous solution (12, 28) of sodium aluminate and passing the pulp (14) after the mechanical defibering step (2) to said bleaching step (3).
4. The method of claim 3, **characterized** in that the impregnation step (1) of said wood chips (11) to be mechanically defibered at least partially utilizes the ash (28) dissolved in water.
5. The method of any of the previous claims, **characterized** in that the bleaching step (3) is carried out at a temperature of about 20-150 °C, advantageously 50-100 °C.
6. The method of any of the previous claims, **characterized** in that the pH of said bleaching step (3) is adjusted to value of about 9.5-12.5, preferably 10-12.
7. The method of any of the previous claims, **characterized** in that the concentrated

(5, 8) spent liquor (21) of said bleaching step (3) is combusted (6) at a temperature of 500-1100 °C.

8. The method of any of the previous claims, **characterized** in that the spent liquor
5 (16) received from the bleaching step (3) is concentrated (5) to a solids content of at least about 30 %, preferably 35-45 %.

9. The method of claim 8, **characterized** in that the concentrated spent liquor (17)
10 of said bleaching step (3) is further concentrated with hot flue gases (20) discharged from the combusting step (6) of said spent liquor.